

### Abstract

1        A method for roughening a surface of an ion exchange system structure using  
2        laser interaction with a surface. The laser surface roughening process allows the use of a  
3        wide range of substrates such as metals, ceramics, silicates, polymers and the like,  
4        including varieties which can not be fabricated in a fine fibrous structure. The surface  
5        roughened ion exchange system structure may be used as an ion-exchange media in  
6        applications such as fuel cells, batteries, and other catalysis systems where a high surface  
7        exchange area is desirable.

20200801 584T6001